

ARMY Declass/Release Instructions On File

The Files

30 April 1956

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Visit to SCEEL, New Jersey - Trip Report

1. A visit was made to Fort Monmouth, SigC Engineering Laboratory, 23-24 May 1956, for the purpose of discussing the SigC infra-red telephone, AN/PAC-2, and demonstrating the IS-1 long range unit. Insofar as time permitted, inquiries were also made regarding development status of other equipments, in which we are interested. Office of Communications representatives were:

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To facilitate future contact with Fort Monmouth project engineers, the engineer's name as well as his telephone extension at SCEEL or Evans SigC Laboratory is noted.

2. AN/PAC-2 - While the Signal Corps had hopes of freezing the design of the AN/PAC-2 for production in April, it appears that such will not occur. At the present time the contract (RCA) is two months behind schedule, and further delay is anticipated. One difficulty being encountered is the contractor's attempt to couple the lead sulfide detector, with an impedance of 1 megohm, directly into the first transistor stage (4000 ohm) without the aid of a transformer. A second problem concerns excessive feedback between source and detector and is being investigated by the contractor. Additionally, the Signal Corps would like to provide a plug-in thallous sulfide cell for increased nighttime sensitivity, but at the present time such cells are not available to them. Another problem encountered by the contractor is that the germanium coating on the 5" reflector peels when subjected to rigorous humidity tests. The infra-red people were impressed with the high quality of the coating on the IS-1 reflector and requested assistance in contacting the company that did the coating. This information was obtained from [REDACTED] and has since been passed on to Fort Monmouth along with additional information regarding the galvanometer. The project engineer is Mr. William R. Dravneek, extension 51787. Mr. Harry Dauber, former chief, Infra-red Section, and now Chief of the Surveillance Branch, SCEEL, maintains a primary interest in infra-red development.

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3. IS-1 Field Test - A 1000-yard field test of the IS-1 Communications System was made in a secure area maintained by Fort Monmouth.

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Compatibility tests were also made between the tube version of the AN/PAC-2 and the IS-1. Although the undersigned felt that the performance of the IS-1 equipment in this field test was poor for such a short operating range, the Signal Corps was considerably impressed. In later talks, Dauber, a recognized infra-red communications expert, stated that two SigC projects could become feasible if the IS-1 design principles could be made available to them. An informal request for two sets was made. One project concerns a master station for the AN/PAC-2 IR telephone net; Dauber feels the use of the IS-1 as the master station would increase the operating range of the AN/PAC-2 due to the high sensitivity of the receiver and greater power of the transmitter. The second project concerns microwave transmission in one direction and infra-red communication in the opposite direction for two-way communications. Such projects were discussed almost two years ago, and it is now felt that this new equipment, (IS-1) may make the work possible. He requests that one or two sets be made available to them for study or possibly for their retention. In the field demonstration, smoke appeared when the first set was turned on; a spare set was available for the test. It has since been learned that the contacts on the rotary switch short to the case, due to vibration in transport. [redacted] advised that this fault is corrected by removing the amplifier and bending the contacts on the rotary switch inboard. The rather poor performance of the IS-1 tests at Fort Monmouth is attributed to ground reflection of (elevation of at least one set is desirable) and possibly the questionable quality of the lens (not the coating). The lens in the present equipment have a circle of confusion of 250/1000 of an inch. TSS plans to provide new replacement lens which have a circle of confusion of 120/1000 of an inch maximum. It is planned that these better quality lens be installed in the twenty units received. 25X1A9a

4. G43/U - The present G43/U hand crank generators have an aluminum case instead of the former magnesium case. The seat and legs, when closed, measure 31 1/4" long, which makes them 11" too long for our EC-5 burial container. The standard generator weighs sixteen pounds; the legs, four and one-half pounds. The fifty units to be delivered to the Agency by end of May weigh fourteen and one-half pounds. This reduction in weight is due to a special light weight armature. However, for replacement purposes, the armatures of the standard Signal Corps G43/U and the lightweight armature are completely interchangeable. The Signal Corps has awarded a production contract to the Lewett Manufacturing Co. for the production of 2,500 G43/U Hand Crank Generators at a unit cost of \$190.00. A set of specifications was procured for [redacted] 25X1A9a
[redacted] Project Engineer. The Fort Monmouth Project Engineer is Mr. Bernard Sachs, Extension 52083. 25X1A9a

5. G49/U - The G49/U is a special purpose miniaturized hand crank generator for the AN/TRC-37 (see below) with power capabilities of 12 volts at 1 ampere and 400 volts at 100 milliamperes. The specified maximum weight is twelve pounds; the target weight is ten pounds. The Project Engineer is Mr. Bernard Sachs, Extension 52083.

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6. Transistorized Power Supplies For Conventional Communications Equipment - The Signal Corps has under development six different types of transistorized power supplies with power drains of up to 100 watts. The primary power source for these transistor power supplies is 24 volts. The Project Engineer is Mr. Bernard Sachs, Extension 52083.

7. AN/TRC-37 - The AN/TRC-37 is Signal Corps version of the RS-6, having a frequency range of approximately 1.9 to 15.2 megacycles in two bands. Nominal power output is 10 watts CW. A second transmitter is provided as a component of the equipment with the approximate dimensions of 8" x 5" x 12" with a power output of 35 watts voice and 100 watts CW. The transmitter has two variable frequency oscillators and an approximate dial calibration. The Signal Corps plans that accurate tuning of the transmitter will be accomplished by first tuning the receiver to the desired frequency and zero-beating the transmitter with the receiver. Present development work on the receiver includes complete transistorization and slug tuning with cam followers. Frequency presentation is via the Veeder Root Counter method and crystal calibration markers are provided at 200 kc intervals. Initial prototypes are anticipated in December 1956. [REDACTED] of this office has entered into discussions with the Signal Corps for the procurement of service test models of the AN/TRC-37. The Project Engineer is Mr. Paul Muntzon, Extension 52623.

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8. AN/TRD-3 - The AN/TRD-3 is a counter-measures DF set having a frequency range of .1 to 1.5 megacycles. This unit is in production with delivery being made at the rate of 30 units per month. The equipment consists of 18 chests and bags and weighs approximately two tons. A technical manual is being prepared as TM-11-629. Equipment cost is approximately \$8,000.00 plus \$5,000.00 for GFE equipment. The Project Engineer is Mr. Harold Jaffee, Extension 61126 (Evans Laboratory).

9. AN/TRD-4 - The AN/TRD-4 is a counter-measures DF set covering the frequency range of 100 to 1500 kilocycles. This equipment is similar to the AN/TRD-3, except loop as well as Adcock antennas are provided. A panelled shelter is also part of the GFE equipment. Cost are approximately the same as those of the AN/TRD-3. A TM Manual is now available as TM-11-688.

10. AN/TRD-11 - The AN/TRD-11 is a counter-measures DF set covering the frequency range of 30 to 230 megacycles. This equipment was to be man-transportable, and development work was discontinued when it was found that the equipment would weigh 100 pounds. Present development efforts call for a transistorized version of new equipment to extend to the frequency range of the PRC-5, which covers from .5 to 20 megacycles. The new equipment is to be assigned nomenclature as the AN/TRC-6 and covers the frequency range from 20 to 100 megacycles. The target weight is between 15 and 20 pounds. The Project Engineer is Mr. Harold Jaffee, Extension 61126, Evans Signal Lab.

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11. PAM - An engineering model of the Morse Code Tape Puncher and Keyer was available for examination. This equipment appears to be near a design freeze with service test models due from the contractor in late May or early June 1956. Two pocket-sized units are of rugged mechanical construction with refinements to include replacable punching heads and sensing contacts. The spring-wound motor provides two speeds: 5 and 60 words per minute. The Project Engineer is Mr. Anthony Caloguri, Extension 52623.

12. FM Transceiver - The SigC is designing a 40 to 70 megacycle FM Transceiver for vehicular installation. The unit will use transistors except for the front end (to include the power supply to operate from a 24 volt source). The Project Engineer is Mr. Anthony Caloguri, Extension 52623.

13. Troop Transceiver - The SigC is designing a fixed frequency (40 mc/s) miniaturized FM transceiver to be worn beneath a combat helmet. The unit is designed for combat team communication use without exposure of personnel. Cognizant engineer is Mr. Anthony Caloguri, Extension 52623.

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